

**What is Claimed is:**

1. A connector for coupling optic fibers, the connector having a mating end and a cable end, the connector comprising:
  - 5 a mating end outer shell having a cavity therethrough for receiving an optic fiber, the cavity defining an axis through the connector;  
a ferrule disposed in the cavity of the mating end outer shell for securing the optic fiber to the ferrule; and  
a cable end outer shell coupled to the mating end outer shell, the cable end outer shell  
10 having a body portion and an extension member, the body portion having a generally axial cavity therethrough for receiving the optic fiber, the extension member extending from the body portion such that a jacket of a cable is deformed when a crimp sleeve is applied to the body portion.
- 15 2. The connector as recited in claim 1, further comprising a spring disposed between the cable end outer shell and the ferrule, the spring biasing the ferrule towards the mating end of the connector.
3. The connector as recited in claim 1, further comprising:
  - 20 an alignment pin extending generally axially from the ferrule for mating with a female alignment receptacle; and

an alignment pin holder disposed in the cavity of the mating end outer shell between the spring and the ferrule, the alignment pin holder having a void for receiving the optic fiber.

4. The connector as recited in claim 1, further comprising a crimp sleeve for crimping  
5 a jacket of a fiber optic cable to the cable end outer shell.
5. The connector as recited in claim 4, wherein the crimp sleeve is generally tubular with  
a substantially rectangularly shaped cross section. :
- 10 6. The connector as recited in claim 4, wherein the crimp sleeve is generally tubular with  
a substantially circularly shaped cross section.
7. The connector as recited in claim 4, wherein the crimp sleeve is generally axially  
disposed on the cable end outer shell.
- 15 8. The connector as recited in claim 7, wherein the crimp sleeve has an aperture  
extending generally radially through the crimp sleeve.
9. The connector as recited in claim 1, wherein the extension member extends generally  
20 radially from the body portion proximate the cable end.

10. The connector as recited in claim 9, wherein the cable end outer shell comprises a second extension member extending generally radially from the body portion distal from the cable end.

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11. The connector as recited in claim 9, wherein the body portion comprises ridges oriented generally laterally with respect to the connector axis.

12. The connector as recited in claim 10, wherein the mating end outer shell has a recess  
10 for receiving the latch of the cable end outer shell.

13. The connector as recited in claim 1, wherein the cable end outer shell comprises a latch for coupling to the mating end outer shell.

15 14. The connector as recited in claim 1, further comprising:  
a coupling sleeve slidably mounted to the mating end outer shell; and  
a spring biasing the coupling sleeve towards the mating end of the connector.

15. The connector as recited in claim 14, wherein the coupling sleeve comprises an arm  
20 extending generally axially along the connector.

16. The connector as recited in claim 14, wherein coupling sleeve comprises a pair of arms that are disposed with the connector axis between the arms.

5 17. The connector as recited in claim 14, wherein the arm comprises a generally axially oriented groove for mating with a corresponding ridge of a backplane housing.

18. The connector as recited in claim 14, wherein the arm has a generally circumferentially oriented notch for assisting in removing the connector from the backplane housing.

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19. The connector as recited in claim 14, wherein the coupling sleeve has a hole for assisting in removing the connector.

20. The connector as recited in claim 1, wherein the connector is constructed according  
15 to a multi-fiber push-on (MPO) standard.

21. A connector for coupling optic fibers, the connector having a mating end and a cable end, the connector comprising:

a mating end outer shell having a cavity therethrough for receiving an optic fiber, the  
20 cavity defining an axis through the connector;

a ferrule disposed in the cavity of the mating end outer shell for securing the optic fiber to the ferrule;

a cable end outer shell coupled to the mating end outer shell, the cable end outer shell having a body portion, the body portion having a generally axial cavity therethrough for receiving the optic fiber; and

a coupling sleeve slidably mounted to the mating end outer shell, the coupling sleeve comprising an arm extending generally axially along the connector.

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22. The connector as recited in claim 21, wherein the coupling sleeve comprises a pair of arms that are disposed such that the connector axis is between the arms.

23. The connector as recited in claim 22, wherein each arm has a generally circumferentially oriented notch for mating with a tool for removing the connector from the backplane housing.

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24. The connector as recited in claim 21, wherein the coupling sleeve has a hole for assisting in removing the connector.

25. The connector as recited in claim 21, wherein the coupling sleeve has two holes for assisting in removing the connector.

26. The connector as recited in claim 21, wherein the arm comprises a generally axially  
5 oriented groove for mating with a corresponding ridge of a backplane housing.

27. A crimp sleeve for crimping a portion of a fiber optic cable to a connector, the crimp sleeve comprising:  
a generally tubular body portion, the tubular body portion having at least one aperture  
10 therethrough for gripping a jacket of the fiber optic cable when crimped to the connector.

28. The connector as recited in claim 27, wherein the crimp sleeve has a substantially rectangularly shaped cross section.

15 29. A cable guide for a fiber optic cable, comprising:  
a body having a first end and a second end opposite the first end, the first end adapted to be rotatably coupled to a boot, the body defining a passageway from the first end to the second end for receiving the fiber optic cable; and  
a rotation key coupled to the body that limits rotation of the body with respect to the  
20 boot.

a rotation key coupled to the body that limits rotation of the body with respect to the boot.

30. The cable guide as recited in claim 29, wherein the rotation key limits rotation of the  
5 body at a first and a second limit of rotation.

31. The cable guide as recited in claim 30, wherein the first limit of rotation is about 90 degrees in a first direction from a central rotational position and the second limit of rotation is about 90 degrees in a second direction from a first rotational position.

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32. The cable guide as recited in claim 29, wherein the rotation key is disposed proximate the first end and is adapted to cooperate with a rotation control device of the boot.

33. The cable guide as recited in claim 29, wherein the rotation key extends outwardly  
15 from the body.

34. The cable guide as recited in claim 29, wherein the body of the cable guide is curved.

35. The cable guide as recited in claim 29, wherein the body of the cable guide is curved  
20 at a radius greater than or equal to a minimum bend radius of the fiber optic cable.

36. The cable guide as recited in claim 29, further comprising a head at the first end of the body.

5 37. The cable guide as recited in claim 36, wherein the head is substantially cylindrically shaped.

38. The cable guide as recited in claim 36, wherein the head comprises a plurality of interference ribs extending from the head.

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39. The cable guide as recited in claim 38, wherein each interference rib is extends axially along an outer surface of the head.

40. The cable guide as recited in claim 29, further comprising a rigidity member.

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41. The cable guide as recited in claim 40, wherein the rigidity member is substantially planar and extends axially from the body.

42. A boot for a fiber optic cable, comprising:



a body having a passageway therethrough and having a first end and a second end, the first end adapted to be rotatably coupled to a cable guide, the second end opposite the first end; and

5 a rotation control device coupled to the body that limits rotation of the body with respect to the cable guide.

43. The boot as recited in claim 42, wherein the rotation control device is disposed proximate the first end and is adapted to cooperate with a rotation key of the cable guide;

10 44. The boot as recited in claim 43, wherein the rotation control device extends axially from the first end of the body and defines a first surface at a first limit of rotation and a second surface at a second limit of rotation, the first surface disposed to abut the rotation key at the first limit of rotation and the second surface disposed to abut the rotation key at the second limit of rotation.

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45. The boot as recited in claim 44, wherein the first limit of rotation is about 90 degrees in a first direction from a first rotational position and the second limit of rotation is about 90 degrees in a second direction from the first rotational position.

46. The boot as recited as recited in claim 42, wherein the rotation control device is formed by a partial circumferential recess in the inner surface of the passageway proximate the first end.

5 47. The boot as recited in claim 42, wherein the first end of the body is adapted to receive the cable guide and maintain mating with an interference fit.

48. The boot as recited in claim 42, further comprising a locking ring extending inwardly from the inner surface of the passageway.

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49. The boot as recited in claim 42, wherein the passageway is shaped substantially rectangularly to inhibit rotation of the cable within the passageway.

50. A boot assembly for a fiber optic cable, comprising:

15 a first component comprising a body and a rotation key thereon; and

a second component comprising a body and a rotation control device coupled to the body, the body adapted to be rotatably coupled to the first component, the rotation control device adapted to engage the rotation key and limit rotation.

51. The boot assembly as recited in claim 50, wherein the first component is one of a cable guide and a boot and the second component is the other of the cable guide and the boot.

52. A method for attaching a boot to a fiber optic cable, comprising:

5 inserting a fiber optic cable through a passageway of a cable guide, the cable guide comprising a body and a rotation key thereon; and

rotatably coupling a boot comprising a rotation control device to the cable guide, the rotation control device limiting the rotation of the cable guide relative to the boot. :

10 53. The method as recited in claim 52, further comprising locking the cable guide to the boot with an interference fit.

54. The method as recited in claim 52, further comprising rotating the cable guide to a first rotational position.

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55. A connection system for a fiber optic cable, comprising:

a mating end outer shell having a cavity therethrough for receiving an optic fiber, the cavity defining an axis through the connector;

a ferrule disposed in the cavity of the mating end outer shell for securing the optic  
20 fiber to the ferrule;

a cable end outer shell coupled to the mating end outer shell for receiving the optic fiber;

a boot disposed over at least a portion of the cable end outer shell; and

a cable guide rotatably coupled to the boot.

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